

LNG Review August 2022
- Recent issues and events -
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Introduction

European spot gas prices and Asian spot LNG prices have been in new record high levels due to near-term uncertainty over gas supply. Netherlands' TTF front-month prices came close to USD 100 per million Btu, or USD 550 per barrel of oil-equivalent, in late August. Assessed Asian spot LNG prices were over USD 60. Henry Hub Futures in the United States were mostly higher than USD 9 per million Btu in the second half of the month. Japan's average LNG import price in Japanese yen reached a record high of over JPY 125 thousand per tonne for July, partly due to the weaker local currency.

In the United States, Cheniere Energy, the current largest LNG exporter in the country, started federal regulatory pre-filing review process for additional capacity at the company's Corpus Christi Liquefaction site in Texas. Energy Transfer (ET) announced a 20-year LNG Sale and Purchase Agreement (SPA) with Shell for output from ET's Lake Charles LNG project in Louisiana. The company announced six SPAs in five months, bringing the total contracted volumes from the facility to nearly 8 million tonnes per year.

In late August, Freeport LNG Development, L.P. updated the status and recovery plans of the facility in Texas, which had been offline since an accident in June. The company anticipated that initial production could commence in early to mid-November, ramping up to over 85% of the export capacity by the end of November. 100%-capacity operations are expected in March 2023.

In Africa, floating LNG production projects in Mauritania/ Senegal and Mozambique respectively presented progress toward initial LNG production.

In Russia, a Russian entity, Sakhalin Energy LLC, was established in August, as the new operator of the Sakhalin 2 project. The company has expressed its intention to maintain LNG supply to the existing buyers of the project, mainly Japanese gas and electric power companies.

* The writer belongs to Gas Group, Fossil Energy and International Cooperation Unit. Some information pieces that some readers may consider very important may not be included due to different reasons.

[Asia Pacific]

Mitsui O.S.K. Lines, Ltd. (MOL) announced on 25 August 2022 its intent to build four Capesize bulkers and two Very Large Crude Carrier (VLCC) tankers, which would use LNG as their main fuel.

NYK announced on 9 August that the company had concluded a contract with Keihin Dock Co., Ltd., an NYK Group company, to modify a tugboat to ammonia-fuel specifications. Sakigake, a tugboat currently fuelled by LNG and operated in Tokyo Bay by NYK Group company Shin-Nippon Kaiyosha Corporation will be converted to operate on ammonia fuel by a target completion year of 2024.

NYK, Nihon Shipyard Co., Ltd. (NSY), ClassNK, and IHI Corporation (IHI) announced on 22 August 2022 that they had signed a research and development agreement for the commercialization of an ammonia floating storage and regasification barge (A-FSRB).

MOL announced on 23 August that it had acquired Approval in Principle (AiP) for design of a large-scale liquefied carbon dioxide (CO₂) carrier from ClassNK.

Pakistan LNG announced an LNG purchase tender on 6 August, inviting firms to submit bids for a total of 72 LNG shipments for delivery over a period of six years. Engro Eximp FZE, a subsidiary of Engro Corporation, announced on 3 August that it had entered a Memorandum of Understanding (MOU) with Excelerate Energy, related to the development of a private sector gas marketing business in Pakistan. The partners will evaluate the possibility of establishing a regasified LNG (RLNG) marketing business.

INPEX CORPORATION announced on 9 August that it had signed a memorandum of understanding (MoU) with AGL Energy to conduct a feasibility study for AGL's Hunter Energy Hub in New South Wales, Australia. Hunter Energy Hub is the second hydrogen hub study that INPEX is pursuing with AGL, following the partnership on the Torrens Hydrogen Hub in South Australia announced on 17 June. The Hunter Energy Hub project mainly envisages hydrogen production from renewable energy sources and the export of hydrogen and hydrogen derived products.

The ACCC's (Australia's competition authority) July 2022 Interim gas report forecasts the east coast of Australia could face a shortfall of 56 PJ (1 million tonnes) in 2023. The report says that it is "recommending the Resources Minister initiate the first step of the Australian Domestic Gas Security Mechanism (ADGSM)." The Minister announced that she was preparing for it. The Minister also announced the Government would extend the ADGSM until 2030, with a review due in 2025. The ADGSM is currently due to expire in January 2023.

Australia's Beach Energy confirmed on 8 August 2022 signing of the LNG Sale and Purchase Agreement (SPA) with BP Singapore Pte. Limited. bp will purchase all 3.75 million tonnes of Beach's expected LNG volumes from the Waitsia Stage 2 project. Supply is targeted

to commence in the second half of 2023 for approximately five years. The LNG SPA contains a hybrid pricing structure linked to both Brent and JKM indices. Supply will be delivered on an FOB basis from the North West Shelf (NWS) facilities in Western Australia.

Australia's Woodside Energy announced on 24 August 2022 that construction had commenced on the Pluto Train 2 Project. Pluto Train 2 will process gas from the Scarborough development. Bechtel will execute the engineering, procurement, and construction of Pluto Train 2 of LNG capacity of ~5 million tonnes per year. Additional domestic gas infrastructure will be installed with capacity of ~225 Terajoules per day (1.5 million tonnes per year).

Malaysia's PETRONAS announced on 2 August that it had signed a Memorandum of Understanding (MoU) with six Korean companies to undertake conceptual and feasibility studies towards establishing a full value chain related to carbon dioxide (CO₂) capture, transport and storage.

PETRONAS announced on 23 August that the company had kicked off the development of the Bintulu Additional Gas Sales Facility (BAGSF-2) at Tanjung Kidurong, Bintulu, that would, from 2023, supply natural gas to Sarawak Petchem Sdn Bhd (SPSB) and Sarawak Energy Berhad (SEB). BAGSF-2 is designed with a capacity to deliver up to 390 million standard cubic feet of gas per day (3 million tonnes per year). The facility will deliver 160 mscfd to a Sarawak Government-owned methanol plant, which will be operated by SPSB. Another 70 mscfd will be supplied to SEB's power plant.

PETRONAS announced on 19 August that it had signed a Memorandum of Understanding (MoU) with Tenaga Nasional Berhad (TNB) to strengthen collaboration in driving solutions towards decarbonisation in support of the country's aspirations to be a carbon-neutral nation by 2050.

bp said during its Q2 2022 Earnings Call that the company hoped to start up the Tangguh Train 3 by the end of 2023.

Technip Energies announced on 22 August 2022 that the company, in a consortium with Clough, had been selected to perform the Front End Engineering Design (FEED) for TotalEnergies' Papua LNG project's upstream production facilities in Papua New Guinea. The facilities cover the development of the Elk and Antelope onshore gas fields. It also incorporates a carbon capture and sequestration (CCS) scheme to remove the fields' native CO₂ and reinject it into the reservoirs.

[North America]

Cheniere's Corpus Christi Liquefaction, LLC, submitted a request to the Federal Energy Regulatory Commission (FERC) to initiate pre-filing review process for the Corpus Christi Liquefaction Midscale Trains 8 & 9 Project on 19 August 2022. The Project will consist

of (a) two mid-scale liquefaction trains, each capable of producing up to 1.64 million tonnes per year of LNG, (b) on-site refrigerant storage, (c) a full-containment, aboveground, 220,000 m³ LNG storage tank with loading capabilities, and (d) an increase in the authorized LNG loading rate. Upon completion of the Commission's mandatory 6-month pre-filing process, anticipated in February 2023, a formal application would be filed to request that the Commission issue an Order authorizing the siting, construction, operation and maintenance of the Project no later than August 2024, allowing construction in October 2024 with targeted in-Service in the second half of 2031.

Freeport LNG Development, L.P. announced on 23 August 2022 that it had completed a detailed assessment of alternatives for resuming operations at its liquefaction facility following the 8 June incident and had identified a recovery plan for reinstatement of partial operations. The company anticipated that initial production could commence in early to mid-November, and ramp up to 85% of the export capacity by the end of November. The recovery plan anticipates loading capabilities at the second dock will be reinstated in March 2023, being capable of operating at 100% of the capacity.

Chesapeake Energy Corporation announced on 2 August 2022 that it had entered into a term gas supply agreement (GSA) with Golden Pass LNG Terminal LLC to deliver 0.3 bcf per day of Responsibly Sourced, independently certified gas, from the Haynesville to Golden Pass' LNG terminal on the Gulf Coast near Sabine Pass, Texas. The GSA is expected to begin in 2024 with a 36-month term at a NYMEX based price less a fixed differential.

Energy Transfer LP announced on 24 August 2022 that its subsidiary, Energy Transfer LNG Export, LLC, had entered into a 20-year LNG Sale and Purchase Agreement (SPA) with Shell NA LNG LLC related to its Lake Charles LNG project. Energy Transfer LNG will supply Shell 2.1 million tonnes per year. The LNG will be supplied on an FOB basis and the purchase price will be indexed to the Henry Hub benchmark, plus a fixed liquefaction charge. The deliveries are expected to commence as early as 2026. Energy Transfer LNG has announced six SPAs in the last five months, bringing the total amount of LNG contracted from the facility to nearly 8 million tonnes per year.

Centrica and Delfin Midstream Inc. announced on 9 August 2022 a Heads of Agreement (HoA) to purchase 1.0 million tonnes per year of LNG for 15 years on an FOB basis at the Delfin Deepwater Port, located 40 nautical miles (74 km) off the coast of Louisiana. The announcement says the agreement will facilitate a Final Investment Decision (FID) for the first floating LNG export facility in the United States by the end of 2022, with operations expected to commence in 2026.

New Fortress Energy (NFE) and Apollo announced on 15 August 2022 that they had completed the previously announced Joint Venture (JV), establishing a platform which now

owns and operates 11 LNG infrastructure vessels consisting of 6 Floating Storage and Regasification Units (FSRUs), 3 Floating Storage Units (FSUs) and 2 LNG Carriers (LNGCs). The Platform has been named Energos Infrastructure and is owned approximately 80% by Apollo-managed funds and 20% by NFE.

NFE announced on 4 August that it had entered an agreement with Plug Power Inc., for a 120 MW industrial-scale green hydrogen plant near Beaumont, Texas. The facility will enable the production of more than 50 tonnes per day of hydrogen.

FortisBC Holdings Inc. and Musqueam Indian Band announced on 10 August 2022 the signing of an agreement to share benefits associated with the Tilbury LNG Projects. For more than 50 years, the Tilbury LNG facility has stored and provided natural gas for use on the coldest days of the year. The Phase 1A expansion, commissioned in 2019, added a 46,000 m³ storage tank and LNG liquefaction capacity of 0.25 million tonnes per year. The Phase 1B expansion is intended to serve growing demand for LNG as a marine fuel by increasing LNG liquefaction capacity by up to 0.65 million tonnes per year. The Phase 2 expansion includes an additional storage tank of up to 142,400 m³ and additional liquefaction of up to approximately 2.6 million tonnes per year. The project, through providing ship loading services for LNG, enables ship-to-ship LNG marine fuelling in the Port of Vancouver. It also enables bulk export for LNG.

EverWind Fuels Company, a private developer of green hydrogen and ammonia production in Nova Scotia, Canada, announced on 23 August 2022 that Germany's Uniper and E.On had signed memorandum of understandings (MoUs) with EverWind to import 1 million tonnes per year of green ammonia from Canada's East Coast by 2025.

Canada's TC Energy Corporation announced on 4 August 2022 that the company and Mexico's Comisión Federal de Electricidad (CFE) had taken a final investment decision (FID) to build the Transportadora de Gas Natural de la Huasteca (TGNH) Southeast Gateway Pipeline, which is to supply gas to the central and southeast regions of Mexico.

[Middle East]

McDermott International announced on 10 August 2022 that the company had been awarded a Front-End Engineering Design (FEED) contract by QatarEnergy for the North Field South (NFS) Offshore Pipelines and Power/FO cables Project. The new contract is in addition to the awards received by McDermott in 2022 for the NFS Jackets and Topsides and Pipelines for the North Field Expansion Project (NFXP). The NFS infrastructure is part of the NFXP development and is designed to supply feed gas for two additional LNG trains and help increase total LNG production in Qatar from 77 to 126 million tonnes per year.

NYK, K-Line and Malaysia's MISC announced on 10 August that the joint-venture

companies comprising NYK, K-Line, MISC Berhad, and China LNG Shipping (Holdings) Limited have signed a long-term time-charter contract with QatarEnergy for seven LNG carriers. The JV companies also executed shipbuilding contracts for the seven 174,000 m³ LNG carriers with Korea's Hyundai Heavy Industries Co., Ltd. (HHI)

Air Products announced on 25 August that it had been awarded the contract to supply four end flash coil wound heat exchangers (CWHE) for the North Field East LNG Project in Qatar.

[Africa]

Kosmos Energy announced on 8 August 2022 that Phase 1 of the Greater Tortue Ahmeyim LNG project in Mauritania & Senegal was over 80% complete at the end of June with both FLNG and FPSO commissioning work underway. The FPSO delivery date is expected to be in the fourth quarter (previously expected to be end of the third quarter). The partners continue to target first gas in the third quarter of 2023 with first LNG end-2023.

ENI announced on 5 August 2022 that it had acquired Export LNG Limited, the owner of the Tango FLNG floating liquefaction facility, from Exmar Group. The FLNG will be used by Eni in the Republic of Congo, as part of the activities in the Marine XII block. The Tango FLNG, built in 2017, has LNG production capacity of 0.6 million tonnes per year. Tango FLNG will begin its activity in Congo in the second half of 2023. LNG production from Marine XII is expected to begin in 2023, and when fully operational it will provide more than 3 million tonnes per year.

West Africa LNG Group (WALNG) announced on 22 August 2022 that it had closed on an equity financing round with an investor group from the United States. WALNG said that it was developing an LNG import terminal and distribution network in Guinea. The project plans to supply natural gas to bauxite mining companies to generate power for existing operations and planned bauxite processing facilities (alumina refineries).

[Europe / Russia]

British regulator Ofgem announced on 3 August 2022 its decision to grant Centrica Storage Limited an exemption until 30 June 2024 from negotiated third party access (nTPA) for new natural gas storage capacity of 28 bcf for the winter of 2022/2023 and 59 bcf for the winter of 2023/2024.

Gasunie announced on 1 August 2022 that its subsidiary EemsEnergyTerminal had sold the remaining 1 bcm-per-year capacity of the LNG terminal in Eemshaven to ENGIE SA. Earlier contracts were signed with ČEZ (Czech Republic) and Shell Western LNG B.V. The total 8 bcm available in the Eemshaven is now 'sold out'. The first delivery of LNG is expected

to take place as early as mid-September.

Germany's Ministry of Economic Affairs and Climate Protection (BMWK) and Trading Hub Europe GmbH (THE) on 15 August announced "Gasumlage" - "gas contribution" or a temporary gas price levy the public (households and industry without access to the wholesale market) must pay utilities so they can afford expensive gas purchases in the wholesale market. The contribution has been set at 2.419 euro cents per kWh to be introduced on 1 October.

Deutsche ReGas said on 23 August that it had submitted an application to Germany's Federal Network Agency (BNetzA) for an exemption from regulation for its planned FSRU-based terminal in the port of Lubmin. Deutsche ReGas plans to start operating the terminal in December.

Germany's Federal Ministry of Economics and Climate Protection announced on 16 August that Uniper, RWE and EnBW / VNG signed a memorandum of understanding (MoU) with the ministry to supply the floating LNG terminals in Brunsbüttel and Wilhelmshaven. The FSRUs (Floating Storage and Regasification Units) will be used as soon as they are commissioned in winter 2022/23. The companies assure the necessary delivery quantity. The two terminals will be operated by Uniper and RWE on an interim basis until a special purpose entity takes over operations.

Gasgrid Finland announced on 17 August 2022 that it had signed an agreement with Fortum to place the floating storage and regasification unit (FSRU) in Fortum's port in Inkoo. Gasgrid plans to deploy the floating terminal in December.

Avenir LNG Limited announced on 11 August that it had signed a Memorandum of Understanding (MOU) with Oxelösunds Hamn AB for the development and construction of an LNG/BioLNG terminal in the Port of Oxelösund, Sweden. The companies have also agreed to evaluate the development of a future energy hub for the transition from LNG/BioLNG to renewable energy sources.

Avenir LNG announced on 23 August that it had signed a Joint Collaboration Agreement (JCA) with Prvo Plinarsko Društvo d.o.o. (PPD) which will initially focus on the sale and distribution of LNG by truck and small-scale LNG vessels from the Krk LNG Terminal to Northern Italy and the eastern European countries from October.

Russia's Gazprom said on 19 August 2022 that the only functioning gas compressor unit at the Portovaya compressor station would be shut down for three days from 31 August for maintenance. Gas transportation through the Nord Stream gas pipeline will be suspended from 31 August until 2 September.

Gazprom said on 30 August that Gazprom Export had notified France's Engie that Gazprom Export would suspend gas supplies to Engie from 1 September after Engie failed to

pay for all deliveries made in July.

Russia's NOVATEK announced on 1 August that NOVATEK-Yurkharovneftegas had launched methane leak monitoring using unmanned aerial vehicles (UAVs).

The new Russian entity Sakhalin Energy LLC announced on 19 August that the rights and obligations of Sakhalin Energy Investment Company under the Production Sharing Agreement were transferred to the new entity on the day in accordance with the Decree of the Government of the Russian Federation of 2 August 2022 "On Measures to Implement Decree of the President of the Russian Federation No. 416 of 30 June 2022". Sakhalin Energy LLC has said its absolute priority remains the key principles - safety, health and care for personnel, ensuring continuous and reliable production - and the fulfilment of all existing obligations.

Reference: Company announcements, Cedigaz News Report.

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